DATABASE APPLICATIONS

Curriculum Content Frameworks

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DATABASE APPLICATIONS

Grade Levels: 10, 11, 12 Course Code: 492140	Prerequisite: Keyboarding
Course Description: Database Applications is a one-semester course in which students learn to organize data; create, search, and query databases; and use integrated software to combine database with word processing and mail merge.	

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Unit 1: Introduction to Databases
Hours: 5

Terminology: Data, Database, Database management system (DBMS), Entry, Field, File, Form, Query, Record, Report, Table

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		**ACADEMIC and WORKPLACE SKILLS** What the Instruction Should Reinforce		
Knowledge	**Application**	**Skill Group**	**Skill**	**Description**
1.1 Explain the purpose of a database		Foundation	Listening	Comprehends concepts related to a database [1.2.1]
			Reading	Comprehends written information for main ideas [1.3.7]
				Identifies relevant details, facts, and specifications [1.3.16]
		Thinking	Decision Making	Comprehends ideas and concepts related to databases [4.2.2]
1.2 Identify/Define the hierarchy of data (i.e., field, record, file, entry)	1.2.1 Explore an existing database and identify the hierarchy of data	Foundation	Listening	Comprehends concepts related to a database [1.2.1]
			Reading	Analyzes and applies what has been read to specific task [1.3.2]
				Applies information and concepts derived from printed material to a database [1.3.3]
				Applies/Understands technical words that pertain to the hierarchy of data [1.3.6]
		Thinking	Knowing how to Learn	Applies new knowledge and skills to a database [4.3.1]
				Uses available resources to acquire new skills in relation to a database [4.3.4]

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do				ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge		**Application**		**Skill Group**	**Skill**	**Description**
1.3	Identify/Define the components of a database	1.3.1	Explore an existing database, and identify the components	Foundation	Listening	Comprehends concepts related to a database [1.2.1]
					Reading	Analyzes and applies what has been read to specific task [1.3.2]
						Applies information and concepts derived from printed material to a database [1.3.3]
						Applies/Understands technical words that pertain to the hierarchy of data [1.3.6]
				Thinking	Knowing how to Learn	Applies new knowledge and skills to a database [4.3.1]
						Uses available resources to acquire new skills in relation to a database [4.3.4]

Unit 2: Create a Database
Hours: 10

Terminology: Field data type, Field name, Field properties, Input mask/picture, Navigation buttons (record controls), Primary key, Relational database, Relationship

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		**ACADEMIC and WORKPLACE SKILLS** What the Instruction Should Reinforce		
Knowledge	**Application**	**Skill Group**	**Skill**	**Description**
2.1 Compare/Contrast file management between database software and other software	2.1.1 Create a new database file	Foundation	Writing	Organizes information in an appropriate format [1.6.10] Records data [1.6.16]
		Thinking	Knowing how to Learn	Applies new knowledge and skills to a database [4.3.1] Uses available resources to apply new skills to create a new database file [4.3.6]
			Reasoning	Applies rules and principles to create a new database file [4.5.1] Comprehends ideas and concepts related to creating a new database file [4.5.2]

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do				ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge		**Application**		**Skill Group**	**Skill**	**Description**
2.2	Discuss the design process of a relational database	2.2.1	Identify the data to be included in the database	Foundation	Listening	Comprehends ideas and concepts related to a relational database [1.2.1]
		2.2.2	Divide data into appropriate tables		Reading	Applies/Understands technical words that pertain to a relational database [1.3.6]
		2.2.3	Determine the relationship between tables			Draws conclusions from what is read [1.3.12]
						Locates pertinent information in documents to divide data into appropriate tables [1.3.18]
					Writing	Organizes information in an appropriate format [1.6.10]
						Writes appropriate entries [1.6.22]
				Thinking	Decision Making	Comprehends ideas and concepts related to tables [4.2.2]
						Demonstrates decision-making skills [4.2.4]
						Evaluates information/data to make best decision [4.2.5]
					Knowing how to Learn	Applies new knowledge and skills to tables [4.3.1]
					Problem Solving	Draws conclusions from observations, evaluates conditions, and gives possible solutions [4.4.5]
					Reasoning	Comprehends ideas and concepts related to relationships between tables [4.5.2]

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	**Application**	**Skill Group**	**Skill**	**Description**
2.3 Discuss the creation of a table within a database, including field name, field/data types, primary key, field properties	2.3.1 Design and create a table	Foundation	Reading	Comprehends written information, and applies it to a table [1.3.8]
			Writing	Applies/Uses technical words and concepts [1.6.4]
				Organizes information in an appropriate format [1.6.10]
		Thinking	Creative Thinking	Combines information in a new way [4.1.2]
			Decision Making	Comprehends ideas and concepts related to tables [4.2.2]
			Knowing how to Learn	Applies new knowledge and skills to tables [4.3.1]
				Uses available resources to apply new skills [4.3.6]
2.4 Discuss methods of data entry	2.4.1 Enter data, using a table	Foundation	Writing	Records data, using a table [1.6.16]
	2.4.2 Enter data, using a form	Thinking	Knowing how to Learn	Applies new knowledge and skills to enter data, using a table [4.3.1]

Unit 3: Edit and Maintain a Database
Hours: 15

Terminology: Filter, Find, Sort, Wildcard

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	**Application**	**Skill Group**	**Skill**	**Description**
3.1 Discuss features associated with editing and maintaining a database	3.1.1 Add and delete records and fields	Foundation	Listening	Comprehends ideas and concepts related to maintaining a database [1.2.1]
	3.1.2 Use ***find*** to edit a database			Listens to follow directions [1.2.6]
	3.1.3 Use wildcard characters (*, ?, #) to edit a database		Reading	Applies/Understands technical words that pertain to maintaining a database [1.3.6]
	3.1.4 Use ***sort*** to rearrange data		Writing	Applies/Uses technical words and concepts in maintaining a database [1.6.4]
	3.1.5 Apply filters			Organizes information in an appropriate format [1.6.10]
		Thinking	Knowing how to Learn	Applies new knowledge and skills to maintaining a database [4.3.1]
			Reasoning	Applies rules and principles to maintaining a database [4.5.1]
				Comprehends ideas and concepts related to maintaining a database [4.5.2]

Unit 4: Basic Queries
Hours: 20

Terminology: Calculated fields, Dynaset, Foreign key, Logical operators, Referential integrity, Relational operators

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		**ACADEMIC and WORKPLACE SKILLS** What the Instruction Should Reinforce		
Knowledge	**Application**	**Skill Group**	**Skill**	**Description**
4.1 Define *query*	4.1.1 Create a query	Foundation	Listening	Comprehends ideas and concepts related to a query [1.2.1]
				Listens to follow directions [1.2.6]
			Reading	Applies/Understands technical words that pertain to a query [1.3.6]
			Knowing how to Learn	Applies new knowledge and skills to create a query [4.3.1]
			Reasoning	Applies rules and principles to create a query [4.5.1]
4.2 Explain differences between filters and queries		Thinking	Reasoning	Comprehends ideas and concepts related to filters and queries [4.5.2]
4.3 Define relational operators (>, <, <>, >=, <=, =)	4.3.1 Use relational operators in queries	Foundation	Arithmetic/ Mathematics	Applies mathematical principles related to queries [1.1.4]
				Comprehends mathematical ideas and concepts related to queries [1.1.13]
				Uses basic numerical concepts in practical situations [1.1.32]
4.4 Define *logical operators* (AND, OR, NOT)	4.4.1 Use logical operators in queries	Foundation	Arithmetic/ Mathematics	Applies mathematical principles related to queries [1.1.4]
				Comprehends mathematical ideas and concepts related to queries [1.1.13]
				Uses basic numerical concepts in practical situations [1.1.32]

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	**Application**	**Skill Group**	**Skill**	**Description**
4.5 Discuss relationships between tables	4.5.1 Create a relationship between two tables	Thinking	Creative Thinking	Combines ideas or information in a new way [4.1.2] Makes connections between seemingly unrelated ideas [4.1.6]
			Decision Making	Demonstrates decision-making skills [4.2.4]
			Knowing how to Learn	Applies new knowledge and skills to tables [4.3.1] Uses available resources to acquire new skills or improve skills [4.3.4]
4.6 Define *calculated fields*	4.6.1 Create a calculated field	Foundation	Listening	Comprehends ideas and concepts related to calculated fields [1.2.1]
			Writing	Applies/Uses technical words and concepts [1.6.4]
		Thinking	Knowing how to Learn	Applies new knowledge and skills to calculated fields [4.3.1]

Unit 5: Reports
Hours: 15

Terminology: Automated report creator, Function, Grouping, Summarizing

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	**Application**	**Skill Group**	**Skill**	**Description**
5.1 Define *report*	5.1.1 Create a report with an automated report creator (i.e., Wizard/Perfect Expert), using a table	Foundation	Reading	Applies/Understands technical words that pertain to reports [1.3.6]
			Writing	Applies/Uses technical words and concepts [1.6.4]
			Reasoning	Applies rules and principles to a new situation [4.5.1]
				Comprehends ideas and concepts related to reports [4.5.2]

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do			ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	**Application**		**Skill Group**	**Skill**	**Description**
5.2 Explain advanced features, including calculating, sorting, grouping, and summarizing	5.2.1	Create a report with calculated fields (i.e., sum, max, min, count, avg, etc.)	Foundation	Arithmetic/ Mathematics	Applies mathematical principles related to reports [1.1.4]
	5.2.2	Create a report with sorted fields		Listening	Comprehends ideas and concepts related to reports [1.2.1]
	5.2.3	Create a report with grouped fields			Listens to follow directions [1.2.6]
	5.2.4	Create a report with summarized fields		Reading	Applies/Understands technical words that pertain to reports [1.3.6]
				Writing	Applies/Uses technical words and concepts [1.6.4]
					Composes and creates documents [1.6.8]
					Organizes data in an appropriate format [1.6.10]
			Thinking	Creative Thinking	Combines ideas or information in a new way [4.1.2]
				Knowing how to Learn	Applies new knowledge and skills to reports [4.3.1]
				Problem Solving	Comprehends ideas and concepts related to reports [4.4.1]

Unit 6: Data Controls
Hours: 10

Terminology: Bound control, Calculated control, Default value, Required value, Unbound control, Validation rule, Validation text

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		**ACADEMIC and WORKPLACE SKILLS** What the Instruction Should Reinforce		
Knowledge	**Application**	**Skill Group**	**Skill**	**Description**
6.1 Define *required fields*	6.1.1 Set up a required field	Foundation	Listening	Comprehends ideas and concepts related to fields [1.2.1]
				Listens to follow directions [1.2.6]
			Reading	Applies/Understands technical words that pertain to fields [1.3.6]
		Thinking	Knowing how to Learn	Applies new knowledge and skills to setting up fields [4.3.1]
			Reasoning	Comprehends ideas and concepts related to fields [4.5.2]
6.2 Define *default value*	6.2.1 Set up a default value	Foundation	Listening	Comprehends ideas and concepts related to values [1.2.1]
				Listens to follow directions [1.2.6]
			Reading	Applies/Understands technical words that pertain to values [1.3.6]
		Thinking	Knowing how to Learn	Applies new knowledge and skills to values [4.3.1]
			Reasoning	Comprehends ideas and concepts related to values [4.5.2]

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	**Application**	**Skill Group**	**Skill**	**Description**
6.3 Define *validation rule*	6.3.1 Set up a validation rule	Foundation	Listening	Comprehends ideas and concepts related to validation rules [1.2.1]
				Listens to follow directions [1.2.6]
			Reading	Applies/Understands technical words that pertain to validation rules [1.3.6]
		Thinking	Knowing how to Learn	Applies new knowledge and skills to validation rules [4.3.1]
			Reasoning	Comprehends ideas and concepts related to validation rules [4.5.2]
6.4 Define *bound control*	6.4.1 Create a bound control	Thinking	Creative Thinking	Combines ideas or information to create a bound control [4.1.2]
			Knowing how to Learn	Applies new knowledge and skills to create a bound control [4.3.1]
6.5 Define *unbound control*	6.5.1 Create an unbound control	Thinking	Creative Thinking	Combines ideas or information to create an unbound control [4.1.2]
			Knowing how to Learn	Applies new knowledge and skills to create an unbound control [4.3.1]
6.5 Define *calculated control*	6.5.1 Create a calculated control	Thinking	Creative Thinking	Combines ideas or information to create a calculated control [4.1.2]
			Knowing how to Learn	Applies new knowledge and skills to create a calculated control [4.3.1]

Glossary
Unit 1: Introduction to Databases

1. Data – the information that is entered into the computer to be processed
2. Database – a collection of related data
3. Database management system (DBMS) – an application program that allows the user to organize, maintain, and use large amounts of related information
4. Entry – the data stored in an individual field in a single record
5. Field – an individual piece of information in a record represented by a column in a table
6. File – a collection of records
7. Form – a component of a database that allows viewing and/or editing of a table one record at a time
8. Query – a component of a database that limits the data displayed to that which meets certain criteria
9. Record – a collection of related fields represented by a row in a table
10. Report – a component of a database that organizes information in a printed format
11. Table – a component of a database that stores data in rows and columns

Unit 2: Create a Database

1. Field data type – type of information such as text, number, date/time, currency, memo, etc.
2. Field name – description of the information in a column
3. Field properties – settings such as field name, field type, field size, and field format
4. Input mask/picture – pattern or model for entering data in a table or form
5. Navigation buttons (record controls) – icons that move to the next, previous, first, and last record or page
6. Primary key – uniquely identifies a field for each record; default sort value
7. Relational database – organizes and stores data in tables that have at least one reference to another table
8. Relationship – link or connection between tables

Unit 3: Edit and Maintain a Database

1. Filter – criteria used to find/display a subset of records from a table

2. Find – a method of searching for information within a database

3. Sort – placing records in a specified order based on the entries in a field

4. Wildcard – symbols (*, ?, #) that represent any character or combination of characters

Unit 4: Basic Queries

1. Calculated field – a field generated from an expression or function
2. Dynaset – the results of a query; records displayed when a query is run
3. Foreign key – a field in one table whose values are required to match the primary key of another table
4. Logical operators – text (AND, OR, NOT) used with relational operators to further define the comparison of two or more values (i.e., >=1 AND <=2)
5. Referential integrity – relationship rules that verify data changes
6. Relational operators – mathematical symbols (>, <, <>, <=, >=, =) that compare two values

Unit 5: Reports

1. Automated report creator – guides through report creation process by allowing selection of layout based on a variety of templates

2. Function – built-in formulas that perform a set of calculations (SUM, NOW, etc.)

3. Grouping – organizes data by a field's entries to eliminate duplicates and to enhance readability

4. Summarizing – calculating totals, averages, counts, minimums, or maximums for grouped records

Unit 6: Data Controls

1. Bound control – an object in a form or report that is linked to data in a table or query
2. Calculated control – an object in a form or report that uses an expression or function as its data source
3. Default value – a field property that assigns a designated entry for all new records in a table
4. Required field – a field property that sets a specific requirement for the data entered in a field
5. Unbound control – an object in a form or report not associated with data from the database that displays titles, lines, pictures, or other design elements
6. Validation rule – a field property that sets a specific requirement for the data entered in a field
7. Validation text – a field property that displays a message when a validation rule is violated